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(71) Applicant(s)

Siemens Aktiengesellschaft

(Incorporated in the Federal Republic of Germany)

Wittelsbacherplatz 2, 80333 München,  
Federal Republic of Germany

Ford-Werke Aktiengesellschaft

(Incorporated in the Federal Republic of Germany)

Henry-Ford-Strasse 1, 50725 Köln,  
Federal Republic of Germany

(72) Inventor(s)

Maximilian Loeffler

Hans-Juergen Nussbaum

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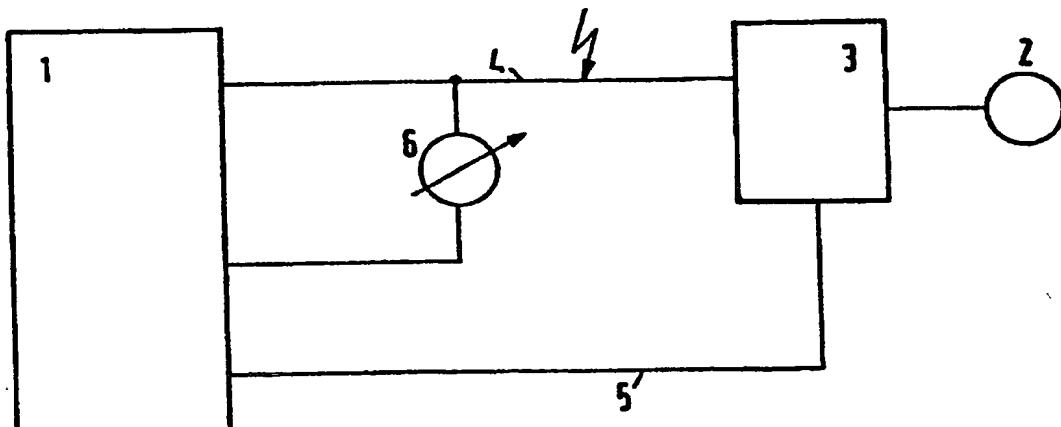
(74) Agent and/or Address for Service

Haseltine Lake &amp; Co

Hazlitt House, 28 Southampton Buildings,  
Chancery Lane, LONDON, WC2A 1AT,  
United Kingdom

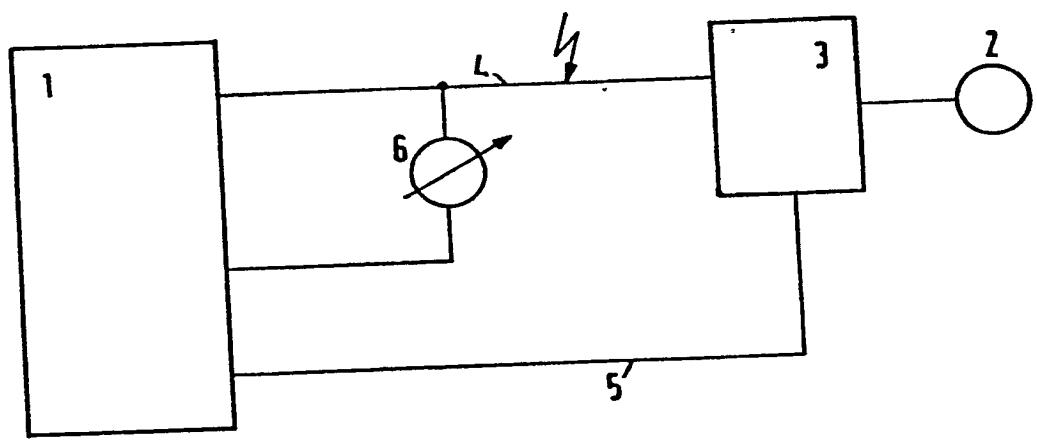
## (54) Securing system for a motor vehicle

(57) A control unit (1), which enables or disables double-locking, monitors, with the aid of a voltage monitor (6), the control line (4) to a final control element (3) for the door locks (2), so that double-locking is not enabled unintentionally. When the ignition is switched on, the command for disabling double-locking is emitted by the control unit (1) as soon as the voltage level on the control line (4) deviates from the normal case.



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SECURING SYSTEM FOR A MOTOR VEHICLE

The invention relates to a securing system for a motor vehicle, in particular a central locking arrangement.

5 Such securing systems are well known. All the doors of a motor vehicle can be locked or unlocked together using a key, or by remote control. The motor vehicle may be locked in this way when parked, as a protection against thieves. In order to prevent theft 10 of the vehicle by smashing the window panes and opening the doors from the inside, it is known to engage a so-called double-lock. The vehicle doors are then 'doubly' locked and without a key can no longer be opened, either from the outside, or from the inside.

15 However, a short-circuit of the "double-lock" control line to a voltage or to the frame of the car occurring as a result of an accident can enable double-locking unintentionally.

It is desirable that the securing system is 20 arranged so that it is not possible to engage the double-lock unintentionally so that if the vehicle is badly damaged as the result of an accident, for example, it remains possible to open the vehicle doors from the inside or outside. The present invention 25 seeks to provide a securing system in which unintentional engagement of double-locking as a result of external circumstances is prevented.

According to the present invention there is 30 provided a securing system for a motor vehicle, having a locking means for locking and unlocking a motor vehicle lock and a control means comprising a first control line for controlling the locking of the locking means and a second control line for controlling the unlocking of the locking means wherein the control 35 means compares the signal level of the first control line with a desired value, and controls the signal

level of the second control line to unlock the locking means when the signal level of the first control line deviates from the desired value.

Advantageous developments of the invention are set  
5 out in the subclaims.

For a better understanding of the present invention, and to show how it may be brought into effect, reference will now be made, by way of example, to the accompanying drawing showing a block circuit  
10 diagram of a securing system according to the invention.

The securing system shown in the accompanying drawing has a control unit 1, which controls the locking or unlocking of door locks 2 of a motor vehicle. The locking bars of the door locks 2 are moved by an adjusting device 3. This adjusting device 3 is connected to the control unit 1 via control lines 4 and 5. In order to produce the so-called double-lock (with double-locking, the vehicle doors can no longer  
15 be opened from the inside), two control lines 4 and 5 are provided. A first control line 4 is provided for the transmission of a signal for securing or locking the door lock 2 and a second control line 5 is provided for the transmission of a signal for unlocking the lock  
20 2.

When double-locking is disabled, i.e. as is generally the case when people are in the vehicle and the ignition is switched on, a short-circuit (represented in the Figure by a danger arrow) occurring  
25 as the result of an accident, for example, may cause the first control line 4, to receive a voltage level such that it causes the adjusting device 3 to lock the door lock 2 and double-locking is engaged.

In accordance with the invention, however, the  
30 unintentional engaging of double-locking is avoided by providing a monitoring unit 6 which detects the voltage

level on the first control line 4 and passes it on to the control unit 1 for evaluation.

In the control unit 1, the voltage level of the first control line 4 is compared with a reference value. If the voltage level deviates from the desired value, i.e. if another voltage level than was previously intended is detected on the control line 4, then immediately thereafter a signal is sent to the adjusting device 3 via the second control line 5, so that the lock 2 is unlocked. In this way, double-locking is disabled or disengaged.

When double-locking has been deliberately enabled e.g. when the motor vehicle is parked, then the voltage level should not be monitored, because otherwise the double-lock could be disabled by external manipulation and the securing system would consequently no longer be reliable. It is therefore advantageous to monitor the first control line only when the double-locking has not been engaged. For example, it is possible to monitor first control line 4 only when the ignition is switched on. For this purpose, the control unit 1 is connected to the ignition system (not shown).

The control unit 1 can be realised as a microprocessor. The adjusting device 3 contains a final control element and a motor, which can move the locking bars of the door lock or door locks 2, so that the doors are locked or unlocked. The monitoring unit 6 can be realised in the simplest case by a voltmeter. The monitoring unit 6 can also be arranged such that it is integrated in the microprocessor, in which case the voltage level of the first control line is supplied for evaluation to an input port of the microprocessor via an A/D-converter.

**CLAIMS**

1. A securing system for a motor vehicle, having a locking means for locking and unlocking a motor vehicle lock and a control means comprising a first control line for controlling the locking of the locking means and a second control line for controlling the unlocking of the locking means wherein the control means compares the signal level of the first control line with a desired value, and controls the signal level of the second control line to unlock the locking means when the signal level of the first control line deviates from the desired value.
2. A securing system according to claim 1 wherein the control means also comprises a control unit, connected to the first and second control line, for controlling the locking and unlocking of the locking means, and a monitoring unit, which is connected to the first control line, wherein the monitoring unit detects the signal level on the first control line and supplies it to the control unit.
3. A securing system as claimed in claim 2, wherein the control unit is connected to the ignition system and only monitors the first control line when the ignition is switched on.
4. A security system according to any preceding claim wherein the desired signal value depends upon whether the lock was previously unlocked.
5. A securing system according to any preceding claim wherein the signals measured are voltages.
6. A securing system for a motor vehicle substantially as herein described with reference to the accompanying drawings.
7. A motor vehicle having a securing system as claimed in any preceding claim.

## Relevant Technical Fields

(i) UK Cl (Ed.N) E2A (ABX, AARN, AMXF)  
 (ii) Int Cl (Ed.6) E05B (65/20, 65/36)

## Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE: WPI

Search Examiner  
P J SILVIE

Date of completion of Search  
13 JUNE 1995

Documents considered relevant following a search in respect of Claims :-

## Categories of documents

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P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family; corresponding document.

Category	Identity of document and relevant passages	Relevant to claim(s)
	NONE	

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